

CLAIMS

I claim:

5 1. A method of maintaining session affinity in a server farm coupled to receive client requests, said server farm comprising multiple server groups, each server group comprising multiple clone servers, said method comprising the steps of:

(1) associating a collection of related client requests with a unique session identification code;

10 (2) responsive to receipt of a client request, determining to which of said server groups said client request can be dispatched;

(3) associating with said collection of requests sharing a session identification code a list of every server in said server farm that has serviced a request in said collection;

15 (4) responsive to receipt of a client request, determining if said list associated with said collection of requests to which said request belongs includes a server identification code that matches a server identification code of a server in said determined server group; and

(5) if a match is detected, dispatching said client request to said matched server.

20 2. The method of claim 1 wherein step (3) comprises, upon routing of a client request in a session to a server that has not previously serviced a client request in said session, adding a unique server identification code corresponding to said server to a

list of server identification codes associated with said session, without deleting any other server identification codes in said list;

3. The method of claim 2 wherein steps (1) and (3) comprise sending said session identification code and said clone identification code, respectively, to a client machine that issued said request so that said client machine can include said session identification code and said clone identification code as part of future requests it issues to said server farm.

4. The method of claim 3 wherein said list of server identification codes forms part of said session identification code.

5. The method of claim 4 wherein said list of server identification codes is appended to said session identification code.

6. The method of claim 5 wherein said session identification code is a jsessionid in accordance with the Java Servlet 2.2 specification.

7. The method of claim 5 wherein said session identification code forms part of a cookie associated with said session.

8. The method of claim 7 wherein said cookie forms part of said client request.

9. The method of claim 5 wherein said session identification code forms part of a Uniform Resource Identifier (URI) that forms part of said client request.

10. The method of claim 4 wherein step (4) comprises the steps of:

5 (4.1) parsing said list in a manner so as to find matching server identification codes in the temporal order in which they were added to said list; and
(4.2) selecting the first matching server identification code detected.

11. The method of claim 1 wherein step (4) comprises the steps of:

10 (4.1) searching said list in a predetermined order for matching server identification code, said predetermined order designed to encounter server identification codes in the temporal order in which they were added to said list;

(4.2) upon encountering a server identification code, determining if it matches a server identification code in said server group; and

15 (4.3) if a match is not detected, repeating steps (3.1) and (3.2).

12. The method of claim 4 wherein step (3) comprises the steps of:

20 if said client request does not comprise a session identification code;

(3.1) creating a session for client requests received from the client issuing said client request;

(3.2) assigning a session identification code to said session;

(3.3) dispatching said client request to a particular server in said determined server group;

(3.4) appending the server identification code of said particular server to said session identification code; and

(3.5) communicating said session identification code with said server identification code to the client that issued said client request.

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13. The method of claim 12 wherein step (3) further comprises the steps of: when a client request is received that pertains to a particular server group and said client request comprises a session identification code, but said session identification code does not have appended thereto a server identification code corresponding to a server in said particular server group;

(3.6) dispatching said client request to a server in said particular server group;

(3.7) appending said server identification code corresponding to said server to said session identification code; and

(3.8) communicating said session identification code, including said newly appended server identification code, to the client that issued said client request.

14. The method of claim 13 wherein step (2) further comprises the steps of:

if a client request comprises a session identification code having appended

20 thereto a server identification code corresponding to a particular server in said determined server group, but said particular server is unavailable to service said client request;

(3.9) dispatching said client request to a different server in said determined server group;

(3.10) appending a server identification code corresponding to said different server to said session identification code; and

5 (3.11) communicating said session identification code, including said newly appended server identification code, to the client that issued said client request.

10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150 155 160 165 170 175 180 185 190 195 200 205 210 215 220 225 230 235 240 245 250 255 260 265 270 275 280 285 290 295 300 305 310 315 320 325 330 335 340 345 350 355 360 365 370 375 380 385 390 395 400 405 410 415 420 425 430 435 440 445 450 455 460 465 470 475 480 485 490 495 500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575 580 585 590 595 600 605 610 615 620 625 630 635 640 645 650 655 660 665 670 675 680 685 690 695 700 705 710 715 720 725 730 735 740 745 750 755 760 765 770 775 780 785 790 795 800 805 810 815 820 825 830 835 840 845 850 855 860 865 870 875 880 885 890 895 900 905 910 915 920 925 930 935 940 945 950 955 960 965 970 975 980 985 990 995 1000 1005 1010 1015 1020 1025 1030 1035 1040 1045 1050 1055 1060 1065 1070 1075 1080 1085 1090 1095 1100 1105 1110 1115 1120 1125 1130 1135 1140 1145 1150 1155 1160 1165 1170 1175 1180 1185 1190 1195 1200 1205 1210 1215 1220 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server groups, each server group comprising multiple server clones, said computer program product comprising computer executable instructions for:

associating a collection of related client requests with a unique session identification code;

5 responsive to receipt of a client request, determining to which of said server groups said client request can be dispatched;

associating with said collection of requests sharing a session identification code a list of every server in said server farm that has serviced a request in said collection;

10 responsive to receipt of a client request, determining if said list associated with said collection of requests to which said request belongs includes a server identification code that matches a server identification code of a server in said determined server group; and

if a match is detected, dispatching said client request to said matched server.

15 17. The method of claim 16 wherein said computer executable instructions for associating said list with said collection of requests comprises, upon routing of a client request in a session to a server that has not previously serviced a client request in said session, adding a unique server identification code corresponding to said server to a list of server identification codes associated with said session, without deleting any 20 other server identification codes in said list;

18. The method of claim 17 wherein said computer executable instructions for associating a collection of related client requests with a unique session identification

code and said computer executable instructions for associating said list with said collection of requests comprise sending said session identification code and said clone identification code, respectively, to a client machine that issued said request so that said client machine can include said session identification code and said clone identification code as part of future requests it issues to said server farm.

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19. The computer readable product of claim 18 wherein said list of server identification codes forms part of said session identification code.

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15 1000000000000000000000
20 1000000000000000000000

20. The computer readable product of claim 19 wherein said list of server identification codes is appended to said session identification code.

21. The computer readable product of claim 19 wherein said session identification code is a jsessionid in accordance with the Java Servlet 2.2 specification.

22. The computer readable product of claim 19 wherein said session identification code forms part of a cookie associated with said session.

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23. The computer readable product of claim 22 wherein said cookie forms part of said client request.

24. The computer readable product of claim 19 wherein said session identification code forms part of a Uniform Resource Identifier (URI) that forms part of said client request.

5 25. The computer readable product of claim 18 wherein said computer executable instructions for determining if said list associated with said collection of requests to which said request belongs includes a server identification code that matches a server identification code of a server in said determined server group comprises computer executable instructions for:

10 parsing said list in a manner so as to find matching server identification codes in the temporal order in which they were added to said list; and

15 selecting the first matching server identification code detected.

20 26. The computer readable product of claim 18 wherein said computer executable instructions for determining if said list includes a server identification code that matches a server identification code of a server in said determined server group comprises computer executable instructions for:

searching said list in a predetermined order for matching server identification code, said predetermined order designed to encounter server identification codes in the temporal order in which they were added to said list;

25 upon encountering a server identification code, determining if it matches a server identification code in said server group; and

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if a match is not detected, re-executing the searching and determining instructions.

27. The computer readable product of claim 19 wherein said computer executable instructions for adding a unique server identification code comprises computer executable instructions for:

5 if said client request does not comprise a session identification code;

creating a session for client requests received from the client issuing said client request;

10 assigning a session identification code to said session;

dispatching said client request to a particular server in said determined server group;

15 appending the server identification code of said particular server to said session identification code; and

communicating said session identification code including said server identification code, to the client that issued said client request.

28. The computer readable product of claim 27 wherein said computer executable instructions for adding a unique server identification code further comprises computer executable instructions for:

20 when a client request is received that pertains to a particular server group and said client request comprises a session identification code, but said session

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identification code does not have appended thereto a server identification code corresponding to a server in said particular server group;

5 dispatching said client request to a server in said particular server group;

appending said server identification code corresponding to said assigned server to said session identification code; and

communicating said session identification code, including said newly appended server identification code, to the client that issued said client request.

10 29. The computer readable product of claim 28 wherein said computer executable instructions for adding a unique server identification code comprises computer executable instructions for:

15 if a client request comprises a session identification code having appended thereto a server identification code corresponding to a particular server in said determined server group, but said particular server is unavailable to service said client request;

20 dispatching said client request to a different server in said determined server group;

appending a server identification code corresponding to said different server to said session identification code; and

communicating said session identification code, including said newly appended server identification code, to the client that issued said client request.